MOTOROLA

Official Radio Communications Sponsor for the 1984 Olympic Games

UHF MICOR
Base Station and Repeaters

406-420 MHz
75/45/12W
450-470 MHz
75/45/20/12/2W
470-512 MHz
60/40/20/12W

MOTOROLA
Communications and Electronics Inc.

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UHF MICOR Base Stations and Repeaters

Performance Specifications

General

Model	Frequency (MHz)	Minimum RF Output Power	Input Voltage	Input Current (Amps)			
				AC		13.6V dc Negative Ground	
				Stby.	Xmt.	Stby.	Xmt.
C24RCB	450-470	2W	120V ac ±20%, 60 Hz (standard) 120/220/240 50/60 Hz. opt. with emergency reverting, 12V dc recharging	.85	2.1	1.5	10.0
C34RCB	406-420, 450-512	12W		.85	2.1	1.5	10.0
C44RCB	450-512	20W		.85	2.6	1.5	11.0
C54RCB	406-420, 450-512	45W*		.85	3.8	1.5	17.9
C64RCB	406-420, 450-512	75W**		.85	6.1	1.5	27.0

All Models Continuous Duty *40W 470-512 MHz **60W 470-512 MHz

No. of Frequencies:	Single, two-frequency and two-receiver stations (dc and tone remote control) Four-frequency stations (tone remote control) Single frequency repeaters (dc or tone remote control)
Squelch options:	Carrier squelch, PRIVATE-LINE coded squelch, and DIGITAL PRIVATE-LINE squelch.
Metering:	Indoor upright option—2 panel-mounted meters, with associated selector switches, provide resonant indication of all receiver, exciter, and power amplifier circuits to tuning and checking. COMPA-STATION radio unit—Optional internal-mounted meter used to measure all essential circuits for tuning and checking.

Transmitter

Antenna Connector:	
Base Station	Type "N"
Repeater Station	Xmtr.—Type "N" Rcvr.—Type "BNC"
Optional Duplexer	Type "UHF"
RF Output Power:	75W, 45W, 12W (406-420 MHz) 75W, 45W, 20W, 12W, 2W, (450-470 MHz) 60W, 40W, 20W, 12W (470-512 MHz)
Output Impedance:	50 Ohms
Oscillator Frequency Stability:	Channel element maintains oscillator frequency within ±.0002% from −30°C to +60°C ambient (+25°C ref.)
Transmitter Sideband Noise:	−85 dB @ ±25 kHz −100 db @ ±1 MHz
Spurious and Harmonics:	More than 85 dB below carrier
Modulation:	15F2 and 16F3: ±5 kHz for 100% at 1000 Hz
Audio Sensitivity:	0.120 volt ±3 dB for 60% maximum deviation at 1000 Hz Remote Telephone Line: −20 dBm max. for 60% maximum deviation at 1000 Hz
FM Noise:	55 dB below 60% system deviation at 1000 Hz
Audio Response:	+1, −3 dB from 6 dB/ octave pre-emphasis, 300-3000 Hz, referenced to 1000 Hz
Audio Distortion:	Less than 2% at 1000 Hz; 60% system deviation

FCC Designation:	450-470 MHz	470-494 MHz	494-512 MHz
	2W CC4262C		
	12W CC4221C	CC4221C-1	CC4221C-2
	20W CC4222C	CC4222C-1	CC4222C-2
	45W (40W) CC4223C	CC4223C-1	CC4223C-2
	75W (60W) CC4224C	CC4224C-1	CC4224C-2

Notes:
1. 75W models are licensable under FCC Rules Parts 21 and 90.
2. 60W models are licensable under FCC Rules Parts 21 and 90.
3. 45W models are licensable under FCC Rules Parts 21, 90, and 95 (A).
4. 40W models are licensable under FCC Rules Parts 21, 89, and 90.
5. 20W models are licensable under FCC Rules Parts 21, 89, 90, and 95(A)
6. 12W models are licensable under FCC Rules Parts 21, 89, 90, and 95(A).
7. 2W models are licensable under FCC Rules Parts 21, 83, 89, 90, and 95(A).

Receiver

Channel Spacing:	25 kHz	
EIA Modulation Acceptance:	±7 kHz minimum	
Oscillator Frequency Stability:	Channel element and AFC maintains oscillator frequency within ±.0002% from −30°C to +60° ambient (+25°C reference)	
	WITHOUT PREAMP	WITH PREAMP
Sensitivity—20 dB Quieting:	Less than 0.5 μV	Less than 0.25 μV
EIA SINAD:	Less than 0.35 μV	Less than 0.175 μV
Selectivity EIA SINAD (±25 kHz):	−90 dB	−90 dB
Intermodulation—EIA SINAD:	−85 dB	−80 dB
Spurious and Image Rejection:	100 dB min.	100 dB min.
Squelch Sensitivity—Carrier Squelch (adjustable):	0.25 μV or less at threshold	0.125 μV or less at threshold
Tone-Coded Squelch (fixed):	0.25 μV or less	0.125 μV or less
Digital Coded Squelch:	0.25 μV or less	0.125 μV or less
Audio Characteristics—Remote Control Models:	Telephone Line: Output: +18 dBm at 600 ohms Response: +1, −3 dB from 6 dB/octave de-emphasis Distortion: 3% at 1000 Hz Hum & Noise: −55 dB For Local Speaker: Output Available: 5 watts at 8 ohms Response: +2, −8 dB from 6 dB/octave de-emphasis Distortion: 5% at 1000 Hz Hum & Noise: −50 dB	
RF Input Impedance:	Nominal 50 Ohms	

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Specifications subject to change without notice.

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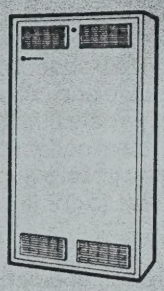
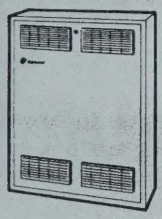
R3-2.1-50I

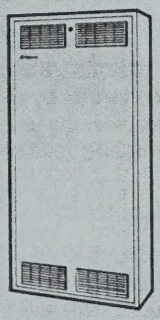
Remote Control Station
Indoor cabinet 22"W x 41"H x 10"D
(559 x 1041 x 254 mm)
Shipping Wt. 190 lbs.
(86.2 kg)

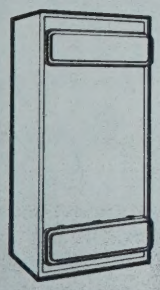




Remote Control Station
(12W & 2W models only)
Indoor cabinet
22"W x 30¼"H x 11½"D
(incl. knobs)
(559 x 768 x 292 mm)
Shipping Wt. 150 lb.
(68 kg.)

Remote Control Station
Indoor cabinet 22"W x 60"H x 19¼"D
(559 x 1524 x 489 mm)
Shipping Wt. 200 lbs.
(90.7 kg)





Remote Control Station
Outdoor cabinet (incl. vents) 22"W x 46"H x 20"D
(559 x 1169 x 508 mm)
Shipping Wt. 180 lbs.
(81.7 kg)

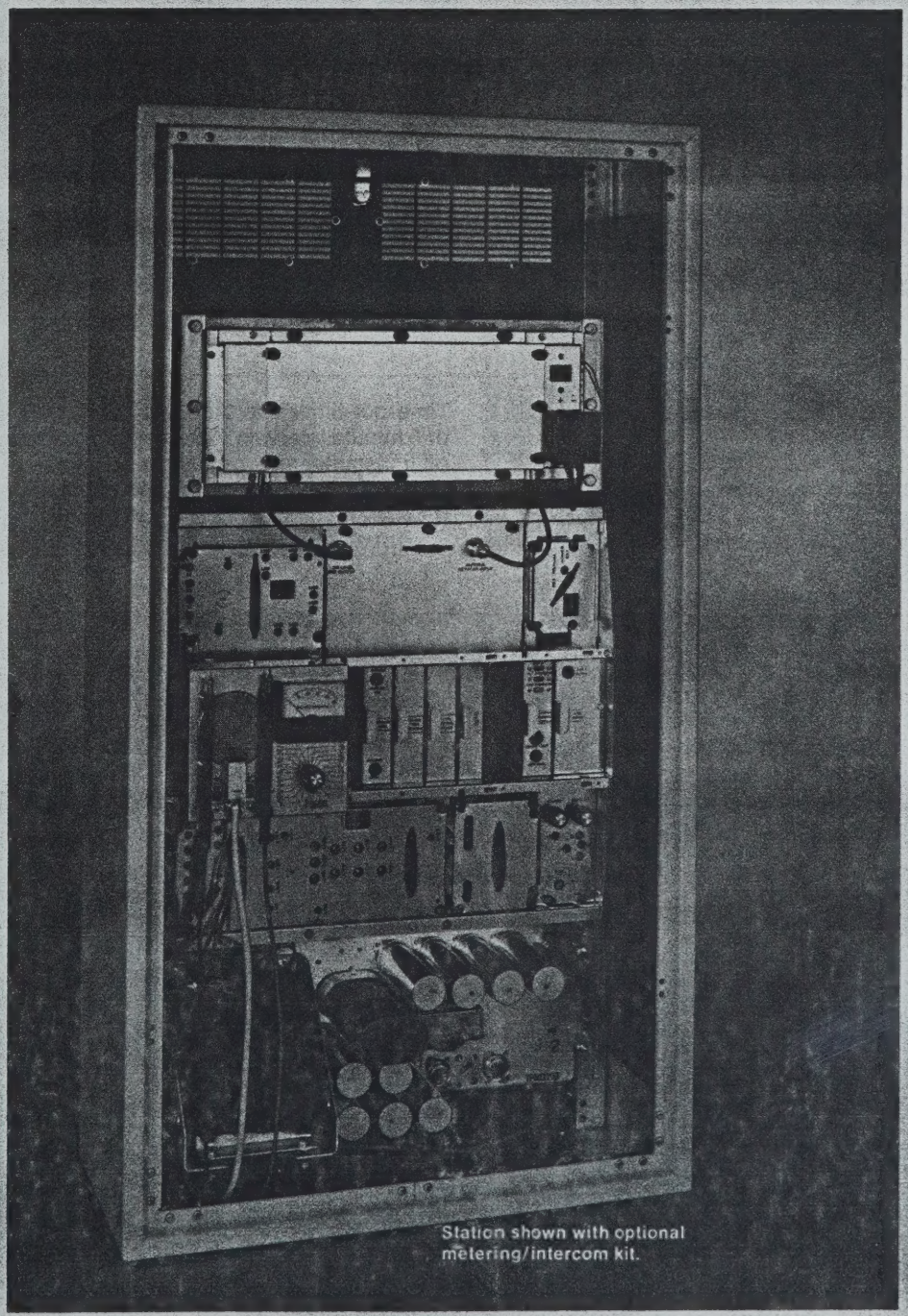
46" indoor cabinet also available

Remote Control Station
Indoor upright cabinet
21¾"W x 70"H x 20¼"D
(552 x 1768 x 514 mm)
Shipping Wt. 383 lbs.
(173.2 kg)

Outdoor upright model also available

Other Options Available

Transmit Switch
Mute 2nd Receiver
Control Point Intercom (with speaker)
Remote Squelch Control
Paging/PL Transmit On-Off
Singletone Decoder
Four-Wire Audio
PRIVATE-LINE Squelch
Repeater set-up and knock-down
Wild Card



Station shown with optional metering/intercom kit.

UHF MICOR Base Stations and Repeaters

STANDARD

Feature	Description	Benefits
High Performance Transmitter	Advanced design provides the lowest sideband noise level available. A built-in circulator provides increased protection to other users from transmitter intermodulation interference.	These MICOR radio technology features result in less interference between users in crowded environments. Also, less filtering is required for repeater and multiple antenna sites, which lowers the cost of cavities and duplexers.
All Solid State	100% solid state transmitter, receiver, and power supply means greater reliability and efficiency.	The solid state MICOR base station provides you with instant full rated transmit and receive power. Cooler operation means longer component life, minimal maintenance.
SENSITRON Receiver	Single conversion receiver design complements the high performance transmitter with its own premium performance specifications.	High sensitivity and selectivity combine to insure reception of weak signals, even in high RF density areas. High IM rejection signifcantly decreases problems caused by intermodulation between other RF sources. And improved receiver performance has the same effect towards increased range as increasing the power output of the system transmitter.
Power Control Circuit	This MICOR base station circuit not only monitors the power going to the antenna, but also monitors the antenna load VSWR.	Should the antenna be disconnected or shorted, the exclusive patented Power Control Circuit automatically decreases the input power, preventing damage to the transmitter. Full power returns upon removal of the adverse condition.
Continuous Duty Transmitters	2/12/20/45/75 watts of continuous RF power is available from this 100% solid state station.	No performance degradation even with excessive line voltage variation (±20%) and excessive temperature (+60°C). A specially designed heat exchanger eliminates the need for blowers. A built-in circulator protects the transmitter against high VSWR due to antenna mismatch.
Receiver AFC	Locks the receiver to the incoming mobile or repeater transmit frequency.	Automatically optimizes system stability. Provides performance equal to or better than that of a receiver with ±.0002% stability.
100% Solid-State Power Supply	Provides reliable 120V 60 Hz operation, meeting EIA performance specifications with line voltage variations up to ±20%. Transient protection guards against line surges and lightning up to 1500 volts.	All power supplies have short circuit protection against overloads. Supply returns to full capacity when short or overload is removed.

INSTALLATION / OPERATION

Feature	Description	Benefits
Cabinet Durability	MICOR base stations are available in compact cabinets that are rugged yet attractive enough for any office environment. Outdoor weather resistant cabinets are also available.	These vinyl-covered cabinets are not subject to scratching or chipping and will maintain their good appearance for years. Outdoor cabinets are vinyl-covered aluminum to protect against rust and the elements.
Remote Control	DC or Tone remote control is available. Allows station installation in a convenient location close to antenna site.	Tone remote control permits station control over any voice frequency path, wire or carrier without the need for DC continuity. Tone control provides greater versatility and capability than DC control. As many as 11 different station functions can be controlled from a single tone remote console. A simple change-out of plug-in modules converts a station from DC to Tone control.
UNI-CHASSIS Construction	Antenna network, remote control functions, receiver circuits, transmitter power control, and all low level transmitter circuits are combined on a unified circuit board "chassis."	Consolidation of these normally separated units reduces intercabling and increases reliability.
Factory Pre-Test	All stations are factory tested under normal operating conditions prior to shipping.	Factory pre-testing helps eliminate problems which might otherwise occur during initial operation.
Maintenance Features	Plug-in modules, standard 19" rack mounting and metering sockets are standard on all MICOR base stations. Available options include service intercom and metering panel.	Maintenance checks and servicing are completed quickly and easily. Plug-in modules and standard size rack mounting allow for easy removal and replacement of parts, if necessary.

OPTIONS

Features	Description	Benefits
Multiple Frequency Operation	Tone remote control stations are available with up to four frequency transmit and receive. DC remote control models are available with two frequency transmit and receive. Two receiver models are also available.	Allows added versatility and capability to your radio system.
Multiple PRIVATE-LINE Coded Squelch	Permits up to four PRIVATE-LINE squelch code capability on transmit and/or receive. Available only on tone control stations (excluding T4R4 models).	Enables accessing multiple repeaters or contacting selected groups within a large fleet.

Feature	Description	Benefits
DIGITAL PRIVATE-LINE Coded Squelch	A completely solid state system using large scale integrated circuitry.	Minimizes annoying co-channel message reception. Your operators will hear only those calls that have your individual system code. Operator fatigue is reduced and missed/misunderstood messages are minimized. The 80 unique system codes insure the effectiveness of your communications system for years to come.
Duplex (Repeater) Operation	RT repeaters are available that transmit and receive simultaneously with no radio performance degradation. RF shield and filter kits are included.	Use of repeater stations provides significant extension of the mobile-to-mobile (or portable-to-portable) coverage within the system.
Duplexer	Pass-notch duplexers for duplex and repeater applications. Two and four cavity models are available, depending on transmit-receive frequency separations.	Motorola's patented design duplexer is effective at frequency separations as low as 2 MHz. Duplexer is small enough to fit in a standard COMPA-STATION base station cabinet.
Time-Out Timer	Time-out-timer is available in ½, 1, 2, 4, or 8 minute intervals. Automatically shuts off transmitter after predetermined time period. This feature is standard on all repeater models.	Prevents transmitter lock-up or tieing up a channel by prolonged transmitter keying. Resets transmitter instantly after mic button is released.
Pre-Amplifier	Improves the usable receiver sensitivity from 0.35 μV to 0.175 μV.	Increases range capability in low noise areas. This has the same effect on system coverage as quadrupling the transmitter power.
Voting Encoder	Permits the use of the receiver as a satellite receiver in a SPECTRA-TAC voting receiver system.	Allows the base station to become an integral part of a receiver voting system.
Power Supplies	A variety of power supplies are available to address the following applications: Emergency power revert to +12V dc, international primary power (120/220/240V ac, 50/60 Hz), international primary power with emergency reverting, and instances where line voltage can be expected to fluctuate as widely as +20% to −40%.	A variety of power supply options allow you to choose the one which meets your system requirements. All power supplies have short circuit protection against overloads. Emergency reverting supplies provide charging for standby 12V dc battery systems.
Cabinet Versatility	46", 60" and 70" indoor cabinets allow you to choose the accessories you need and house them in a single cabinet. Weatherproof outdoor cabinets are also available.	The 46" and 60" cabinets have enough rack space to house a duplexer. The 70" upright option provides space for a duplexer as well as external metering for convenient monitoring of key voltage and/or current levels.